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November 15, 2001

The Honorable Doug Sutherland
Commissioner of Public Lands
Department of Natural Resources
1111 Washington St. SE
P.O. Box 47001
Olympia WA 98504-7001

Dear Commissioner Sutherland:

Thank you for your interest in integrating the landscape planning activities that you are undertaking with Ecology's TMDL study of Lake Whatcom. Our experience to date indicates that the most successful TMDLs are those in which pollution reductions are implemented while data collection and analysis are taking place – before load allocations are even established.

While the Department of Natural Resource's "contribution" to pollution in Lake Whatcom is not expected to be a significant part of the problem, your efforts to evaluate and control pollution are a good example for all jurisdictions. When our TMDL study is complete in 2004, Ecology will likely require controls on the pollutants in stormwater. The areas where those controls are likely to be most needed are in the areas that have been developed. Pollution controls may be imposed as part of a stormwater permit issued to an appropriate jurisdiction by Ecology. The likelihood of Ecology imposing additional controls on pollution from commercial forestland is remote. Proper implementation and enforcement of forest practice rules should appropriately control pollution.

In your letter you asked for specific responses to three points. I have addressed each of them below.

- **The water quality pollution problems of the Lake Whatcom watershed**

Lake Whatcom fails clean water standards for dissolved oxygen. Low dissolved oxygen in the lake is partly caused by lake eutrophication processes. These processes are driven by the availability of nutrients and the physical conditions present in the lake during the summer and fall. In the case of Lake Whatcom, the limiting nutrient is phosphorus. Additions of phosphorus lead to greater production of algae. Dissolved oxygen is consumed as dead algae decomposed at the bottom of the lake.

The lake is also polluted with mercury. The problem is manifested in high levels of mercury in fish tissue. The mercury pollution problem is probably related to the dissolved oxygen problem. Profound and extended periods of anaerobic conditions (i.e., low/no oxygen) in the lake sediments favor conversion of mercury from inorganic forms to methylated forms. It is the methylated forms of mercury that bio-accumulate in fish tissue and are toxic to humans consuming fish.

The lake is also contaminated with PCBs, which have accumulated in fish tissue. The degree to which this contamination represents normal or abnormal levels in western Washington has not been determined. The level of contamination may represent ambient conditions for lakes in temperate regions of the world.

High levels of bacteria contaminate several of the tributaries of Lake Whatcom, though there are no indications of bacteria at the city of Bellingham's drinking water intake. Bacteria such as fecal coliform indicate a risk of exposure to pathogens when humans come into direct contact with polluted water during recreation or other water-based activities.

There have been suggestions that all of the tributaries of Lake Whatcom be placed on the 303(d) List for pollution of fine sediment. To date we have not received data to support this suggestion. Ecology's decision to propose listing based on fine sediment violations would require establishing an acceptable level of fine sediment for that particular waterbody, and documenting that unacceptable levels of sediments are due to human, rather than natural, causes. Forest practices have often been identified as a source of fine sediment pollution. However, Department of Natural Resource's compliance with current Forest Practice Rules should limit the contribution of fine sediment to streams from forestry activities. Until other sources have been similarly curtailed, we do not believe it would be appropriate to suggest additional reductions from forest sources.

- **Which of the pollution problems, and their approximate relative share, originate on state forest land**

Phosphorus enters a lake either through rain runoff (in its dissolved form) or by attaching to soil particles that are eroded into the lake. Historic forest practices that led to the mass wasting events of 1983 certainly contributed phosphorus to Lake Whatcom. However, recent forest practices such as Department of Natural Resource's watershed analysis and the Forest and Fish Agreement have focused on minimizing the risk of landslides. Phosphorus is essentially stripped from rainfall if stormwater is allowed to filter through forest soils. Overall, forestland is therefore expected to produce the lowest loads of phosphorus per acre.

It is also important to note that the problems with dissolved oxygen have been seen only in the most northern portions of the lake. Much of the phosphorus that enters the southern end of the lake is expected to settle to the bottom of the lake before it can impact the portion of the lake that has been identified as impaired.

Causes of increased phosphorus pollution of the lake are most likely the result of decreased permeability and increased runoff as the watershed around the lake is developed. Other sources include residential fertilizers and leakage from septic systems. Keeping land in forestland uses is an appropriate measure to protect against increasing phosphorus loading to the lake.

The sources of mercury in Lake Whatcom have not been fully evaluated but there is no reason to expect that forestry land uses are contributing to the problem unless airborne mercury pollution has been deposited over wide areas of trees for an extended period of time. Some of the potential mercury sources include natural mineral deposits, leacheate from historic mining activities or solid waste disposal sites, deposition by air from industrial sources, and runoff from pesticides containing mercury.

PCB contamination is a global problem that has reached far beyond near proximity to sources. It is unlikely that any of the activities on state lands are contributing to the PCB contamination in Lake Whatcom.

Fecal coliform contamination in the tributaries of the Lake Whatcom watershed is associated with human residential development. Tributary samples from forest areas typically do not contain fecal coliforms.

- **What additional water quality protection measures, if any, should Department of Natural Resources consider beyond those already set forth in the Forest Practices Rules and the Lake Whatcom Watershed Analysis; the Department of Natural Resources' Forest Resource Plan and HCP for state trust lands, and the additional requirements set forth in E2SSB 6731**

The controls you describe for the state lands in the Lake Whatcom watershed are currently the state of the art for reducing the risk of pollution from commercial forestland. Properly managed commercial forestland has been recognized as the most benign active land use for watershed protection for some time. The possibility of additional controls being imposed as a result of a Lake Whatcom TMDL is remote. Cleanup of Lake Whatcom is more likely to be focused on reducing pollution from non-forestry land uses.

I hope that these answers help you move forward with developing you Landscape Plan.

Sincerely,

Megan White, P.E., Manager
Water Quality Program

cc: Tom Fitzsimmons, Ecology Director